

STUDIES ON THE GENUS *BIDENS* L. (COMPOSITAE) FROM THE EASTERN HEMISPHERE. 2. NEW COMBINATIONS AND A NEW SUBSPECIES FOR THE FLORA OF TROPICAL EAST AFRICA AREA

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ABSTRACT

Four new combinations and a new subspecies are provided for the forthcoming account of the genus *Bidens* for the Flora of Tropical East Africa: *Bidens scopulorum* *comb. nov.* (= *Coreopsis scopulorum*), *Bidens elgonensis* *ssp. morotonensis* *comb. et stat. nov.* (= *Coreopsis morotonensis*), *Bidens elgonensis* *ssp. cheranganiensis* *ssp. nov.*, *Bidens odora* *comb. nov.* (= *Coreopsis odora*) and *Bidens acuticaulis* *var. filirostris* *comb. nov.* (= *Bidens paupercula* *var. filirostris*). A lectotype is selected for the latter name.

KEY WORDS: *Bidens*, *Coreopsis*, Compositae, taxonomy, Africa

*Bidens scopulorum* (Sherff) T.G.J. Rayner, *comb. nov.* BASIONYM: *Coreopsis scopulorum* Sherff, Bot. Gaz. (Crawfordsville) 88:302. 1929. TYPE: KENYA. K1, Northern Frontier Province, summit of Mt. Garguez, 26 Aug. 1911, E. Heller *s.n.* [U.S. Nat. Herb. No. 634308] (HOLOTYPE: US).

*Bidens scopulorum*, known only from the type locality in central Kenya, is a member of a group of closely related species each with a restricted distribution occurring at altitude and endemic to eastern Africa. It is apparently most closely related to *B. chippii* (M.B. Moss) Mesfin Tadesse and *B. isostigmatoides* Sherff, both found only in the Imatong Mts. of southern Sudan. From these two species, *B. scopulorum* may be distinguished by its capitula ca. 1 cm wide at anthesis (2-4 cm in *B. chippii* and *B. isostigmatoides*), outer phyllaries 8 or fewer (not to 20+), inner phyllaries ca. 3 mm long (not to 7 mm), paleae apices obtuse or rounded (not acute), and cypselas setose and biaristate (not nude and exaristate).

*Bidens elgonensis* (Sherff) Agnew ssp. *morotonensis* (Sherff) T.G.J. Rayner, *comb. et stat. nov.* BASIONYM: *Coreopsis morotonensis* Sherff, Amer. J. Bot. 34:157, f. 5. 1947. TYPE: UGANDA. U1, Northern Province, Karamoja, Mt. Moroto, Jun. 1942, *I.R. Dale U-261* (HOLOTYPE: EA; Isotype: K). *Bidens morotonensis* (Sherff) Agnew, *Upland Kenya Wild Flowers*. 466. 1974.

Another member of this group of species is *Bidens elgonensis* from eastern Uganda and central-western Kenya. This species, originally published by Sherff (1925) as *Coreopsis elgonensis*, was based on the single specimen of R.A. Dummer 3304 at K collected on Mt. Elgon. Later, (Sherff 1947) he described a closely related species, *C. morotonensis*, from the nearby Mt. Moroto. This he distinguished from *C. elgonensis* by its not exerted capitula (exserted in *C. elgonensis*), peduncles 1-2 cm (not 2-9 cm), leaves 2.0-3.5 cm long (not 1.0-1.8 cm), etc. Subsequent collections have maintained these vegetative distinctions and have added a further character, namely specimens collected on Mt. Elgon have at least some internodes 2 cm or more long towards the apices of the flowering branches, whereas specimens collected on Mt. Moroto usually have internodes 1.5 cm or less. Although specimens from these two areas show constant vegetative differences, characters of the inflorescence are uniform throughout the range of the species. Therefore, because differences in characters of the capitula are mostly employed to distinguish between species in African *Bidens*, the distinctions between these two variants are not here considered worthy of specific delimitation. For this reason I have decided to reduce *C. morotonensis* to the level of subspecies within *B. elgonensis*.

*Bidens elgonensis* (Sherff) Agnew ssp. *cheranganiensis* T.G.J. Rayner, *ssp. nov.* TYPE: KENYA. K3, Rift Valley Province, Cherangani, east slope of Kaisungor, Dec. 1971, *D.R. Tweedie 4192* (HOLOTYPE: K).

Subspecies haec a *Bidente elgonensi* (Sherff) Agnew subspecie *elgonensi* et *Bidente elgonensi* subspecie *morotonensi* differt capitulis exsertis, quidem foliis aliquibus duobus centimetris longis plerumque multo longioribus, necnon quidem internodiis aliquibus versus apices caulium florentium plus quam duobus centimetris longis.

*Bidens elgonensis* also occurs in the Cherangani Hills, a large dissected plateau to the east of Mt. Elgon. In this area its distribution is much more widespread and vegetative characters show a greater degree of variation within and between specimens. Populations in this area, however, are distinct from those growing on Mt. Elgon and Mt. Moroto. The internodes toward the apices of the flowering branches are mostly over 2 cm long and the capitula

are exerted on long peduncles, thus resembling *B. elgonensis* ssp. *elgonensis*. The leaves, however, resemble those of *B. elgonensis* ssp. *morotonensis*, but may be as much as 5 cm long. The leaf segments also tend to be much wider.

***Bidens odora* (Sherff) T.G.J. Rayner, comb. nov.** BASIONYM: *Coreopsis odora* Sherff, Kew Bull. 11:445. 1957. TYPE: TANZANIA. T7, Southern Highlands Province, Mdapo, Mar. 1954, S.R. *Semsei* 1655 (HOLOTYPE: EA; Isotype: K).

*Bidens odora* is restricted to the Njombe district of southern Tanzania, occurring in montane grassland between about 2150 and 2300 m. It is perhaps most closely allied to *B. elgonensis* but may be distinguished from this species by its bipinnatisect leaves with segments to 1 mm wide (tripartite with segments 2-13 mm wide in *B. elgonensis*), capitula several to many in terminal corymbs (not solitary or few at branch apices) and cypselas biaristate and narrowly winged (not exaristate and unwinged).

***Bidens acuticaulis* Sherff var. *filirostris* (P. Taylor) T.G.J. Rayner, comb. nov.** BASIONYM: *Bidens paupercula* Sherff var. *filirostris* P. Taylor, Hooker's Icon. Pl. 36:t. 3580. 1962. TYPE: TANZANIA. T8, Southern Province, Songea District, ca. 140 km east of Songea, 4 Jun. 1956, E.W.B.H. Milne-Redhead & P.G. Taylor 10547 (LECTOTYPE [here selected]: K; Isolectotypes: B, BR, EA, K[2 sheets], LISC, P, S, SRGH).

A comparison of the type collections of *Bidens acuticaulis* (1915) and *B. paupercula* (1923) has shown them to be virtually identical. The key distinction used by Sherff (1937) to separate these two species, namely "rami acutissime angulati et fere subalati" for *B. acuticaulis* as opposed to "rami tantum moderate angulati vel subtetragoni" for *B. paupercula*, is wholly unreliable even as a character to distinguish between specimens determined by Sherff himself. Clearly, therefore, *B. paupercula* should be considered a synonym of *B. acuticaulis*. With the uniting of these two names it becomes necessary to rename *B. paupercula* var. *filirostris*. This variety is mainly distinguished from the type variety by the enormously elongated cypselas which may be up to 26 cm long.

Taylor (1962) indicated that the holotype of var. *filirostris* was at K, but here there are three sheets of the type collection *Milne-Redhead & Taylor 10547* bearing parts of at least five plants. As none of these bear any indication by Taylor that they were intended to be the holotype, I do not feel that he has complied with the definition of a holotype as provided by Article 7.3 of the *International Code of Botanical Nomenclature* (Greuter et al. 1988). Therefore I consider it is necessary to select a lectotype from among the sheets of the

type collection at K. Of these "Sheet 2" is here chosen as the lectotype. In addition to having mature fruit this sheet, unlike the others, also possesses well preserved leaves.

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